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ABSTRACT

In an effort to enhance students' understanding of research, a collaborative learning approach was employed in an upper division social psychology course at State University of New York's College at Buffalo. Students worked together in small groups to develop hypotheses, design simple correlational studies, and interpret results, while each student also wrote two individual papers. At the end of the semester, students rated their own and other members' contributions to the group project, as well as the effectiveness of the group experience and the project itself. An analysis of evaluations completed in two subsequent semesters, involving a total of 84 students, indicated the following: (1) a significant positive relationship was found between ratings of groups members' contributions and ratings of the group experience, particularly with respect to helpfulness and usefulness; (2) while students with better grades rated themselves as contributing more to their groups, other group members did not generally give higher ratings to their level of contribution; and (3) group size was negatively related to perceived usefulness of the group, with subjects in larger groups receiving lower ratings from others in their groups. Includes tables of project results. The project assignment, grading form, and evaluation instrument are appended. (TGI)

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ED 405 031

Depth by Doing: Cooperative Research Projects in Social Psychology

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Proceedings of the Annual Conference on Undergraduate Teaching of Psychology (10th, Ellenville, NY, March 20-22, 1996)

TC 970 137

Abstract

Students worked together in groups of 3-5 to develop hypotheses, design simple correlational studies, and interpret results; they also wrote two individual papers. At the end of each semester, students rated their own and other members' contributions to the group project. Correlations showed that ratings of group members' contributions were significantly positively related to all of the ratings of the group experience, particularly to helpfulness and usefulness. Ratings of group members' contributions were related to three of the project variables: whether the project was worthwhile, project's contribution to learning, and subject's willingness to recommend the project to other students. Students with better grades rated themselves as contributing more to their groups, but ratings received by students from their group members were generally not higher among those who got good grades. Group size was negatively related to perceived usefulness and helpfulness of the group; subjects in larger groups also received lower ratings from others in their groups. Students commented that they gained a greater depth of understanding of the research process, even from such a simple project, by seeing it through from start to finish.

Depth by Doing: Cooperative Research Projects in Social Psychology

My students in social psychology seem to have (or gain) little understanding of research. Although I typically spend approximately 2-3 days lecturing on the topic and trying to encourage discussion, my past efforts seemed to meet with little success.

Brems (1994) recommended introducing students to research slowly and carefully. However, my own slow approach did not seem to be working, so I thought I would try a more drastic "immersion" technique to expose students to the entire research process. About half the students in my sections of social psychology are nonmajors, so I decided to use a cooperative learning approach (e.g., Kagan, 1992) to take advantage of the knowledge that some students might already have. Purdom and Kromrey (1995) report that cooperative learning is increasingly being used in college classrooms to promote academic achievement, increase students' participation, and encourage positive attitudes toward learning.

The students worked together to develop hypotheses, design simple correlational studies, and interpret results. They also wrote two individual papers as part of the project; writing is required in all of the upper division psychology classes at Buffalo State College, and tying research and writing together seemed a desirable goal.

Method

Participants

During the first semester, participants were 30 female and 11 male students. During the second semester, there were 28 female and 15 male students. All of them participated as part of normal class requirements.

Materials

A handout (see Appendix 1) was used to explain the first paper. The handout was revised for clarity between the two semesters; the final version is presented in the appendix. Two grading forms (see Appendix 2) listed specific criteria for evaluating the two papers students had to write. A sample paper of my own (shortened to be easier to read) in APA style was distributed to students, as well.

Finally, two short questionnaires were used to evaluate the contributions of the respondent and other group members (Appendix 3) and to evaluate the group experience and the project itself (Appendix 4).

Procedure

Students worked in groups of 3-5 on a simple class research project in social behavior. The project as a whole was worth 100 points (30 points for Paper 1, 60 points for Paper 2, and 10 points from ratings of one's contribution to the group by other members), which was 20% of the course grade.

Groups were formed during the first semester by distributing a form asking students to check some of their interests in social psychology, and to indicate the names of others in the class they would like to be in their group. I took these preferences into account in forming the groups. However, during the second semester, I explicitly considered students' schedules. I asked students who had restricted schedules to come to one area of the classroom, where they sought others with similar schedules. The remaining students were assigned to groups based on their preferences as in the first semester.

Group members first had to work together to derive a common topic. A handout

(see Appendix 1) explaining the project was distributed. Each group member then chose a research question on one facet of the common topic; the research question had to be testable using a questionnaire. For example, one group was interested in the common topic of self-esteem. Each group member then selected one facet of self-esteem to examine empirically; e.g., one member examined whether there was a sex difference in self-esteem, another studied the correlation between self-esteem and extraversion, etc. Groups were required to meet with me to clarify their topics and research questions. A few groups designed a simple experiment using scenarios on two different versions of the questionnaire.

Next, the students wrote Paper 1 individually. The grading form (see Appendix 2) was distributed well in advance of the due date. The first paper (about 2-3 pages in length) described the purpose of the simple study, included a very brief survey of the literature, and stated the hypothesis. It was an abbreviated introduction of an APA-style paper.

I then compiled a single long questionnaire using all students' questions. A sample page from the students' questionnaires from each of the two semesters is presented in Appendix 5. The questionnaires were completed by the students and returned. A few of the students' friends and family members asked to participate and were allowed to do so. Anonymity was assured for all respondents.

I carried out all of the data analyses, and distributed print-outs to all group members. The printouts were customized for each group, although all printouts began with the same information (e.g., frequencies for sex of subject, etc.). I spent a class session explaining the basics of the printouts. Group members were invited to help each

other with interpretation of the data, and groups were also encouraged to meet with me to further their understanding of the results.

The second paper was an extension of the first, with the addition of abstract, method, results, and discussion. Once more, a grading form (see Appendix 2) with specific criteria for evaluation was distributed well in advance of the due date. In addition, a sample paper illustrating format was given to students.

At the end of the semester, students rated their own and other members' contributions to the group project (see Appendix 3). They rated their group experience on five scales, such as whether it was useful and helpful (see Appendix 4). They also rated the project itself on nine scales, such as how much they learned, whether they would recommend the project to other students, etc. These ratings were not anonymous, but students were assured that their project ratings would not be examined until after the final grades were determined.

Results and Discussion

The means and standard deviations for the group and project ratings are presented in Table 1. Results showed that the group experience received generally positive, although not glowing, ratings. The project itself received neutral to somewhat positive ratings. Very few differences were found from one semester to the next. Only two of the 14 variables yielded significant differences due to semester. Students rated the project as significantly more clear $t(82) = 3.05.$, $p < .003$, in the second semester ($X = 4.86$) compared to the first ($X = 3.78$). Similarly, they rated the project as significantly more understandable, $t(82) = 3.03.$, $p < .003$, in the second semester ($X = 5.40$) compared to the first ($X = 4.37$). No significant sex differences were found on any

of the questionnaire variables.

Effects of the group

The number of members in each group varied from 3 to 5. The average contribution score assigned to fellow group members was computed; different formulas were used for 3-, 4-, and 5-person groups. To examine whether subjects perceived themselves as contributing more or less than their fellow group members, a "self-group discrepancy" score was computed by taking a subject's self-rating and subtracting the average of the other group members' ratings.

Correlations (see Table 2) showed that ratings of group members' contributions were significantly positively related to all of the ratings of the group experience, particularly to helpfulness and usefulness. Clearly, good group members were very important to the success of the cooperative learning experience.

In addition, ratings of group members' contributions were related to three of the project variables: whether the project was worthwhile, project's contribution to learning, and subject's willingness to recommend the project to other students. It is clear from these results that the "quality" of other members' contributions was related to several important dimensions of the project.

Self-group discrepancy scores ranged from -5.0 to +5.0. Negative scores indicated that subjects rated themselves lower than they rated their average group member; there were 18 students (21.4%) with negative scores. There were 35 students (41.7%) with self-group discrepancy scores of 0, indicating that their contributions were equal to those of the average group member. Positive scores indicated that subjects rated themselves higher than the average member of their group; 31 students (36.9%) had positive scores.

The self-group discrepancy scores had negative correlations with all of the questionnaire variables, indicating that those subjects who rated themselves higher than the group generally gave the group and the project lower ratings. As may be seen in Table 2, this general tendency was significant for four of the group variables and three of the project variables.

Table 2 also shows that group size was significantly negatively related to two of the group variables (useful and helpful), but not significantly related to any of the project variables.

Effects of grades

Students' grades were correlated with the other variables. The grades used were total exam percentage (for four exams), paper 1 grade, paper 2 grade, and the average rating received by subjects from their group members (the latter three grades formed the project grade).

Exam percentage and grade on paper 1 were not significantly related to any of the questionnaire variables (all rs < .20). Paper 2 grades were significantly related to three of the questionnaire variables: those with higher grades on Paper 2 found the project more clear ($r(82) = .35$, $p < .01$) and understandable ($r(82) = .31$, $p < .01$), and learned more about research, ($r(82) = .26$, $p < .05$). The average rating received by subjects from their group members was significantly related to only one questionnaire variable, learning, $r(82) = .22$, $p < .05$.

Grades were consistently related to self-ratings of contribution to the group, however. Better students rated themselves as contributing more to their groups, with higher exam grades, $r(82) = .30$, $p < .01$, paper 1 grades, $r(82) = .38$, $p < .01$, and

paper 2 grades, $r(82) = .25$, $p < .05$, among those with higher self-ratings. However, the average ratings received by students from their group members were generally not higher among those who got good grades, except for paper 2, on which a higher grade was associated with a better group rating, $r(82) = .25$, $p < .05$.

Subjects in larger groups received lower ratings from others in their groups, $r(82) = -.26$, $p < .05$. The average rating subjects gave others was positively related to the rating they received, $r(82) = .25$, $p < .05$.

Other issues

Students' open-ended comments at the end of the first semester indicated that they sometimes had trouble finding time to meet with their groups. Thus, as discussed in the method section above, I took restricted schedules into account during the formation of the groups in the second semester. Comments from the second semester showed that far fewer students had difficulty finding time to meet with their groups.

I tried to reduce social loafing (e.g., Latane, Williams & Harkins, 1979; Karau & Williams, 1993) in the present study in two ways: by making the papers individually-graded, and by having 10 points of the students' project grade dependent upon the ratings of the other group members. However, neither of these two attempts completely eliminated the negative effect of larger groups. Informal comments from students, combined with some significant negative effects of group size, suggested that the optimal group size for such a project is smaller (perhaps 3, no more than 4, members).

These data show that cooperative learning experiences can be significantly affected by the "quality" of the other group members: a group member who contributes poorly decreases the worth of the entire project for the remaining members. The

literature on cooperative learning generally addresses its positive aspects; for example, Purdom and Kromrey (1995) note that cooperative learning methods are increasingly being used in college classrooms. However, a few studies have discussed possible negative effects of cooperative learning. For example, Tomlinson (1994) notes that gifted middle school students may not benefit from cooperative learning. Other studies (e.g., Peterson, 1993; Battistich, Solomon, & Delucchi, 1993) have mentioned that the quality of the group interaction is critical in the success of cooperative learning. Peterson found that high-achieving students may suffer negative motivational consequences in cooperative learning tasks.

On a positive note, students seemed to gain a "feel" for the research process as a result of this project. Although many approached the project with trepidation, several students seemed surprised that it was easier than they expected. Students also commented that they gained a greater depth of understanding of the research process even from such a simple project by seeing it through from start to finish. Although I collected no data on major status, majors seemed to appreciate the project more than non-majors.

Finally, from a personal standpoint, the process was quite time-consuming. I spent many hours meeting with groups, helping them choose and narrow down topics, going over the printouts, helping students generate keywords for PsycLit, etc. I found the process rewarding, however, and got to know my students better than in most semesters.

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Table 1

Means and Standard Deviations for Evaluations of the Group Experience and the Project Itself

Dependent Variables		
Group Ratings	Mean	St. Dev.
Useful	6.41	2.56
Not frustrating	5.40	2.66
Helpful	6.39	2.37
Contributed to writing paper	5.80	2.50
Contributed to understanding project	6.70	1.99
Project Ratings		
Fun +	4.48	1.90
Interesting +	4.87	1.84
Worthwhile +	4.87	1.79
Clear +	4.33	1.70
Understandable +	4.89	1.62
"How much...learn"	4.14	1.16
"Educational tool"	4.09	1.28
"Recommend...." +	4.89	1.84
"Understanding of research..."	4.31	1.18

Note. Group ratings were made on a 9-point scale. For the project ratings, items marked with a + were answered on 7-point scales. The remainder used 6-point scales. Items were recoded if necessary so that high scores were more positive on all variables.

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Table 2

Correlations Between Ratings of Group, Number in Group, Self-Group Discrepancy with Evaluations of the Group and the Project Itself

Dependent Variables	Avg. Group Rating	Self-Group Discrepancy	Number in Group
Group Ratings			
Useful	.52**	-.24*	-.31
Not frustrating	.35**	-.27*	-.20
Helpful	.42**	-.26*	-.23*
Contributed to writing paper	.31**	-.20	-.16
Contributed to understanding project	.36**	-.24*	-.19
Project Ratings			
Fun	.20	-.17	-.11
Interesting	.14	-.10	-.13
Worthwhile	.26*	-.21	-.13
Clear	.15	-.22*	.03
Understandable	.18	-.15	.03
'How much...learn'	.28*	-.27*	-.08
'Educational tool'	.15	-.16	.02
'Recommend...'	.29**	-.22*	-.06
'Understanding of research...'	.14	-.07	.04

Note. * $p < .05$. ** $p < .01$. All df = 82.

PSY 325 Class Project: Step 1

FIRST

You will be working with your group to come up with a basic topic related to social psychology that can be examined by means of a questionnaire. Choose something that all of the group members are interested in. It will be necessary to narrow down your original topic considerably. Here are some examples of topic ideas:

- Trusting others
- One-night stands
- Eyewitness testimony
- Jealousy in relationships
- Reported aggressiveness
- Self-esteem
- Playfulness in childhood
- Prejudice against homosexuals
- Etc.

If you are totally clueless, make an appointment to see me.

SECOND

Go to the library and find some studies that are relevant to your topic. You may use Psychological Abstracts or its computerized version, called PsycLit. Your group should find roughly four or five relevant, fairly recent research articles. Some journals in social psychology to check:

Journal of Personality and Social Psychology
Personality and Social Psychology Bulletin
Journal of Personality
Social Psychology Quarterly
Journal of Social Behavior and Personality
Journal of Experimental Social Psychology
Journal of Applied Social Psychology
Journal of Social Psychology
Sex Roles
Psychology of Women Quarterly
Social Cognition

Other journals will become relevant depending upon your topic (e.g., journals devoted to issues of homosexuality, race, etc.)

THIRD

After everyone in your group has read and discussed the articles, decide what you want to do your OWN little study on. Perhaps you are interested in sex differences. What hypothesis do you want to test? Hypotheses are originally phrased in the form of a question, which you then turn into a specific prediction about what you expect to happen when you test the idea. For example, "I predict that women will have higher trust scores than men."

Everyone in your group should have a slightly different question, based

on the same general topic (e.g., sex differences in trust, is trust related to self-esteem?, are trusting people less jealous?, etc.). But follow the KISS principle (Keep It Simple, Student).

FOURTH

Write Paper 1. It will be a short (about 2-3 page) version of the introduction of an APA-style paper. In it, you include the following:

APA-Style Introduction

- Presents the general problem under study. This is a general statement telling what the topic of the study is.
- Develops the background. Summarizes the **relevant** literature you have found in your search. Includes some details of how each study was conducted and what the results were.
- Demonstrates the **logical connection** between previous research and the study you plan to do.
- States the **specific purpose** of your study.
- Includes **operational definitions** of variables (exactly how will you measure your concepts?). Attach an appendix with the exact wording of the questions, exact wording of scenario, etc.
- Includes formal statement of hypothesis(es).

In grading, points will be given for each of the bullets above. Each person in the group writes his/her own paper, because each person is doing a slightly different study.

Paper 1 will be the start (the introduction) of Paper 2. The second paper will be written AFTER we collect data and test your hypothesis, so it will include a Method section, a Results section, and a Discussion section. More information on Paper 2 (and a sample paper) will be distributed later.

PSY 325 Grading Form Paper 1 **Name**_____

___ (3) Presents the general problem under study ... What is the topic of the study?

___ (8) Develops the background. Summarizes the **relevant** literature, with some details.

___ (5) Demonstrates the logical connection between previous research and the study you plan to do.

___ (3) States the specific purpose of your study.

___ (6) Includes operational definitions of variables (exactly how will you measure your concepts?). Attach an appendix with the exact wording of the questions, exact wording of scenario, etc.

___ (5) Includes formal statement of hypothesis(es)

___ TOTAL (30 points maximum)

PSY 325 Grading Form Paper 2 **Name**_____

___ (3) Title page (good descriptive title?)

___ (5) Abstract (summarizes the study)

___ (12) Introduction
Develops the background. Summarizes the **relevant** literature.
States the specific purpose of your study.
Demonstrates a logical connection between previous research and your study.
Includes formal statement of hypothesis(es)

___ (10) Method
Participants: tells who they were, gives specifics
Materials: describes your questions
Procedure: explained clearly

___ (5) Results
Demonstrates that you understand what was found
Statistics presented as per examples

___ (10) Discussion
Statement of support or nonsupport of hypothesis
Relates your study to the literature
Discusses limitations of study
Suggestions for future research

___ (5) References (adequate number of relevant sources)

___ (7) Grammar, spelling, sentence construction

___ (3) Format: followed format of sample paper

___ TOTAL

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Your name_____

Ratings of each group member will be determined by averaging across the other two, three, or four people in the group to yield the number of points earned. Your own self-ratings will not be part of your grade.

Please rate your own contribution to your group on this scale:

contributed very little 1 2 3 4 5 6 7 8 9 10 contributed a great deal

Please rate the contribution of each member of your group on the same scale:

Group member #1 name_____

contributed very little 1 2 3 4 5 6 7 8 9 10 contributed a great deal

Group member #2 name_____

contributed very little 1 2 3 4 5 6 7 8 9 10 contributed a great deal

Group member #3 name_____

contributed very little 1 2 3 4 5 6 7 8 9 10 contributed a great deal

Group member #4 name_____

contributed very little 1 2 3 4 5 6 7 8 9 10 contributed a great deal

PLEASE GO ON TO THE BACK -->

These ratings will NOT be examined until after grades are posted, so please be completely honest in your evaluation of the class project. Your ratings will not affect your grade in the class!

Please rate your experience with your group on the following scales:

1.	useful	1	2	3	4	5	6	7	8	9	useless
2.	frustrating	1	2	3	4	5	6	7	8	9	not frustrating
3.	helpful	1	2	3	4	5	6	7	8	9	not helpful
4.	contributed to writing paper	1	2	3	4	5	6	7	8	9	did not contribute to writing paper
5.	contributed to understanding of the project	1	2	3	4	5	6	7	8	9	did not contribute to understanding of the project

Please rate the class project on the following scales:

6.	not fun	1	2	3	4	5	6	7	fun
7.	interesting	1	2	3	4	5	6	7	boring
8.	worthwhile	1	2	3	4	5	6	7	worthless
9.	confusing	1	2	3	4	5	6	7	clear
10.	understandable	1	2	3	4	5	6	7	mysterious

11. How much did you learn from the project?

nothing at all	just a little	some	a moderate amount	quite a bit	a great deal
1	2	3	4	5	6

12. To what extent was the class project a valuable educational tool?

not at all	just a little	some	a moderate amount	quite a bit	a great deal
1	2	3	4	5	6

13. Would you recommend that other students do such a project in this course?

definitely no 1 2 3 4 5 6 7 definitely yes

14. To what extent did this exercise contribute to your understanding of research in social psychology?

not at all	just a little	some	a moderate amount	quite a bit	a great deal
1	2	3	4	5	6

COMMENTS:

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THANK YOU!

BEFORE YOU BEGIN: Version 1

A. Please record your sex and date of birth in the proper spaces on the answer sheet.
B. Please record your Version Number in Special Code K on the answer sheet.

Your answers to the following questions will be **completely anonymous**. Please respond honestly. Please work through the questionnaire one page at a time, reading each question or scenario carefully.

Please answer the first questions using this scale:

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	2	3	4	5

1. I am an aggressive person.

2. Members of my family are aggressive.

3. I watched a lot of violence on TV as a child.

4. My friends influence me a great deal.

5. My friends are aggressive.

6. What is your average alcohol consumption per week (number of drinks)?

none	1-2	3-5	6-8	9-11	12 or more
1	2	3	4	5	6

7. How many times in the past have you acted aggressively toward another individual while under the influence of alcohol?

never	once	2-3 times	3-4 times	5-6 times	7 or more times
1	2	3	4	5	6

8. Were you ever abused as a child?
   1 No
   2 Yes, verbal abuse
   3 Yes, physical abuse (may include verbal)

Suppose you are the boss in a high status company. Chris is one of your employees. She is 5'5" tall, attractive, dependable, a good worker, and has been with the company for ten years. Chris is due for a raise. What are the odds that she will receive a raise?

9. Very high	Above average	Average	Low	Very low
1	2	3	4	5

You were just introduced to a man named Steve at a party. He has dark hair, blue eyes and a great smile. He is 5' 4" tall, dressed well and upon further discussion you find that he is a successful corporate attorney.
(Women) How likely are you to date him if he asks?
(Men) How likely do you think it is that women will want to date him?

10. Definitely	Very Likely	Maybe	Probably not	Definitely not
1	2	3	4	5